



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DIVISIONAL APPLICATION

KIM ET AL.

GROUP ART UNIT: 1711

SERIAL NO. TO BE ASSIGNED

EXAMINER:

RACHEL GORR

FILED: HEREWITH

FOR: CROSSLINKED, WATER-SOLUBLE OR WATER-DISPERSIBLE POLYURE-  
THANES

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

This is a Divisional application of U.S. Application Serial No. 09/303,426, filed on May 03, 1999.

The Divisional application is drawn to non-elected subject matter that was canceled from the claims during the prosecution of the parent application. Kindly amend the Divisional application for further prosecution as follows:

IN THE CLAIMS:

Amend the claims to read as set forth in Appendix I attached to this paper. A marked up version indicating the changes made in the claims is found in the attached Appendix II.

IN THE SPECIFICATION:

Amend the specification as set forth in Appendix III attached to this paper.


R E M A R K S

Claims 1 to 7, 12 and 13 as set forth in Appendix I of this paper are pending in the Divisional application.

The claims have been amended to avoid overlap with the claims pending and allowed in the parent case. Also, the claim language has been revised to better conform with U.S. formal requirements. The specification has been amended to include a reference to the parent application. No new matter has been added. Favorable action by the Examiner is respectfully solicited.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11.0345. Please credit any excess fees to such deposit account.

Respectfully submitted,  
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Encl.: THE ACTIVE CLAIMS (Appendix I)  
THE CHANGES TO THE CLAIMS (Appendix II)  
THE CHANGES IN THE SPECIFICATION (Appendix III)

HBK/BAS

A P P E N D I X I:

THE ACTIVE CLAIMS:

1. A crosslinked, water-soluble or water-dispersible polyurethane of
  - A) at least one water-soluble or water-dispersible polyurethane prepolymer containing terminal isocyanate groups of
    - a) at least one compound having a molecular weight in the range from 56 to 300 which contains two active hydrogen atoms per molecule,
    - b) at least one polymer containing two active hydrogen atoms per molecule,
    - c) at least one compound which contains two active hydrogens and at least one ionogenic or ionic group per molecule,
    - d) at least one diisocyanate,
  - B) at least one polymer containing groups which are reactive towards isocyanate groups, chosen from hydroxyl, and primary and secondary amino and/or carboxyl groups,or a salt thereof.
2. A polyurethane as claimed in claim 1, where the ratio of NCO equivalent of the compounds of component d) to equivalent of active hydrogen atom of components a), b) and c) is in a range from 1.01:1 to 1.4:1.
3. A polyurethane as claimed in claim 1, where the polymer B) comprises, in copolymerized form,
  - e) at least one  $\alpha,\beta$ -ethylenically unsaturated monomer which additionally contains at least one group which is reactive toward isocyanate groups per molecule,
  - f) optionally at least one  $\alpha,\beta$ -ethylenically unsaturated monomer which is chosen from esters of  $\alpha,\beta$ -ethylenically unsaturated mono- and/or dicarboxylic acids with C<sub>1</sub>- to C<sub>22</sub>-alkanols, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and/or dicarboxylic acids with mono- and di-C<sub>1</sub>- to C<sub>22</sub>-alkylamines, esters of vinyl alcohol and allyl alcohol with C<sub>1</sub>- to C<sub>40</sub>-monocarboxylic acids, vinyl ethers, aromatic vinyl compounds, vinyl halides, vinylidene halides, C<sub>2</sub>- to C<sub>8</sub>-monoolefins, nonaromatic hydrocarbons having at least 2 conjugated double bonds and mixtures thereof,

- g) optionally at least one  $\alpha,\beta$ -ethylenically unsaturated monomer which is chosen from N-vinylamides, N-vinyl lactams, primary amides of  $\alpha,\beta$ -ethylenically unsaturated monocarboxylic acids, vinyl- and allyl-substituted heteroaromatic compounds and mixtures thereof,
- h) optionally at least one further monomer containing a free-radically polymerizable,  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one ionogenic or ionic group per molecule.
4. A polyurethane as claimed in claim 3, where the polymer B) comprises, in copolymerized form,
- from 0.05 to 15% by weight of at least one component e),
  - from 0 to 99.9% by weight of at least one component f),
  - from 0 to 99.9% by weight of at least one component g), and
  - from 0 to 50% by weight of at least one component h)
- the total amount of components f) and g) being in a range from 30 to 99.9% by weight.
5. A polyurethane as claimed in claim 3, where the component e) is an ester of acrylic acid or methacrylic acid with a  $C_2$ - to  $C_{12}$ -aminoalcohol, where the amine nitrogen may additionally carry a  $C_1$ - to  $C_8$ -alkyl radical.
6. A polyurethane as claimed in claim 1 where the ratio of NCO equivalent of the component A) to equivalent of active hydrogen atom of component B) is in a range from 20:1 to 1:1.
7. (amended) A polyurethane as claimed in claim 5 which comprises, in copolymerized form
- from 0.05 to 15% by weight of a component e),
  - from 0 to 99.9% by weight of at least one component f),
  - from 0.1 to 99.9% by weight of at least one component g),
  - from 0 to 50% by weight of at least one component h)
- where the total amount of components f) and g) is in a range from 30 to 99.9% by weight.
12. (amended) A coating composition for the textile, paper, printing, leather and adhesives industries, which comprises at least one polyurethane as claimed in claim 1.

13. (new) A polyurethane as claimed in claim 7 which comprises, in copolymerized form, from 0.05 to 15% by weight of tert-butylaminoethyl acrylate and/or tert-butylaminoethyl methacrylate as component e).

For filing

A P P E N D I X II:

THE CHANGES TO THE CLAIMS:

Claim 7 has been amended as follows:

7. (amended) A ~~[polymer]~~ polyurethane as claimed in claim 5 which comprises, in copolymerized form

- from 0.05 to 15% by weight of a component e), ~~[as defined in claim 5, preferably tert butylaminoethyl acrylate and/or tert butylaminoethyl methacrylate,]~~
- from 0 to 99.9% by weight of at least one component f),
- from 0.1 to 99.9% by weight of at least one component g),
- from 0 to 50% by weight of at least one component h)

where ~~[the components f), g) and h) are as defined in claim 3 and]~~ the total amount of components f) and g) is in a range from 30 to 99.9% by weight.

Claims 8 to 11 have been canceled. Claim 12 has been amended as follows:

12. (amended) A coating composition for the textile, paper, printing, leather and adhesives industries, which comprises at least one polyurethane as claimed in claim 1.

New Claim 13 has been added.

A P P E N D I X III:

THE CHANGES IN THE SPECIFICATION:

On page 1:

- After the title and prior to the first paragraph insert the following:

--This is a Divisional application of Application Serial No. 09/303,426, filed on May 03, 1999 (allowed).--

09/303,426